

# RESERVE COPY

## PATENT SPECIFICATION



Convention Date (Switzerland) : July 23, 1936.

**499,149**

Application Date (In United Kingdom) : July 23, 1937.

No. 20475/37.

Complete Specification Accepted : Jan. 19, 1939.

### COMPLETE SPECIFICATION

#### Improvements in or relating to Galvanising

I, TADEUSZ LIBAN, a Polish citizen, of 3, Biskupiastreet, Cracow, Poland, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to methods of galvanising iron, steel and other metals by means of a molten metal bath consisting of or containing zinc, and more particularly to fluxes for use in such galvanisation.

According to the invention I provide a flux for use in galvanising processes employing baths of this character, comprising aluminium oxide together with ammonium chloride, zinc-ammonium chloride, or zinc chloride. The aluminium oxide may constitute approximately 1% by weight of the flux.

This flux may be modified by the inclusion of lead oxide, stannic oxide, iron oxide, bismuth oxide, copper oxide or cadmium oxide, metallic zinc or aluminium or zinc-aluminium alloys.

The following are specific examples of fluxes according to the invention:—

#### EXAMPLE 1.

Aluminium oxide  
Iron oxide.  
Ammonium chloride

#### EXAMPLE 2.

Aluminium oxide  
Lead oxide  
Stannic oxide  
Bismuth oxide  
Cadmium oxide  
Ammonium chloride.

#### EXAMPLE 3.

Aluminium oxide  
Ammonium chloride  
Metallic zinc or zinc aluminium alloys.

#### EXAMPLE 4.

Aluminium oxide  
Metallic aluminium  
Ammonium chloride  
Metallic zinc.

#### EXAMPLE 5.

Aluminium oxide  
Stannic oxide  
Ammonium chloride  
Metallic zinc.

Moreover, in order to increase the cleaning action of the oxide, the flux may

[Price 1/-]

further include alkali chlorides, alkali aluminium chlorides, or fluorine compounds.

The fluxes according to the invention may be used with an ordinary zinc bath and are of particular value in that they can be used with very satisfactory results with zinc baths containing aluminium. The bath may be of the lead-zinc type, i.e. a bath consisting of molten lead upon which is floated a film of zinc, which may also contain aluminium the flux in this case being used on the surface of the lead bath.

The flux may be employed by fusing the constituent materials upon the surface of the molten bath or by coating or sprinkling therewith the surfaces of the articles to be galvanised prior to passing them through the bath.

When the articles being treated are handled mechanically by rotating rollers, the flux may be used for cleaning such rollers in order to avoid soiling said articles.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A flux for use in galvanising processes employing a molten metal bath consisting of or containing zinc, comprising aluminium oxide together with ammonium chloride, zinc-ammonium chloride, or zinc chloride.

2. A flux as claimed in claim 1, containing also metallic zinc, metallic aluminium, or zinc-aluminium alloy.

3. A flux as claimed in claim 1 or claim 2, containing also one or more of the following metal oxides, namely lead oxide, stannic oxide, iron oxide, bismuth oxide, copper oxide, or cadmium oxide.

4. A flux as claimed in any of the preceding claims, containing also one or more fluorine compounds, and/or alkali aluminium chlorides and/or alkali chlorides.

5. A flux for use in galvanising processes employing a molten metal bath consisting of or containing zinc as set forth in any of Examples Nos. 1 to 5 herein given.

6. A galvanising process employing a

Price 5s. 8d.

BEST AVAILABLE COPY

flux as claimed in any of the preceding claims and a molten metal bath consisting of or containing zinc.

5 7. A galvanising process as claimed in claim 6, wherein a zinc bath containing aluminium is employed.

10 8. A galvanising process employing a flux as claimed in any of the preceding claims 1 to 5, and a molten bath of lead upon which is floated a film of zinc, the flux being used upon the surface of the lead.

15 9. A process as claimed in claim 8, wherein the film of zinc contains aluminium.

20 10. A galvanising process as claimed in claim 6 or claim 7, wherein the materials of the flux are fused upon the surface of the bath before insertion therein of the articles to be treated.

11. A galvanising process as claimed in

claim 6 or claim 7, wherein the materials of the flux are applied to the surfaces of the article to be treated prior to entry into the bath.

25 12. In a galvanising process as claimed in any of claims 6 to 11 and in which the articles being treated are handled mechanically by rotating rollers, the use of a flux as claimed in any of claims 1—5 30 for cleaning said rollers.

13. Articles when galvanised by a process as claimed in any of the preceding claims 6 to 12.

Dated this 23rd day of July, 1937.

For the Applicant,

STANLEY, POPPLEWELL &  
FRANCIS,

Chartered Patent Agents,  
Jessel Chambers, 88-90, Chancery  
Lane, London, W.C.2.

Leamington Spa: Printed for His Majesty's Stationery Office, by the Courier Press.—1939.

BEST AVAILABLE COPY